OPINION

Blogs and Twitter in medical publications – too unreliable to quote, or a change waiting to happen?

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With the ubiquitous connectivity offered by the Internet, social media sites (like Twitter and Facebook) and personal publishing platforms (blogs) are proliferating rapidly. In this new, evolving scenario of social media, these tools become an important medium to disseminate information at a lightning speed. However, the conventional medical publication model is less than eager to regard them as equivalent to traditional modes of information dissemination. In this article we examine the role played by the social media as a critic of the medical publication system, and how it acts as a safeguard by building a platform for post-publication peer review.

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The buzzword in the field of communication technology for some time has been Web 2.0. By engaging users in conversational exchange of information, Web 2.0 ushered in a new era of collaborative multi-user interface systems. Science 2.0 followed. Sceptics frowned about taking research 'to the clouds', while advocates of the new way of doing things argued for openness, transparency and the use of harnessed collective intelligence to evaluate, dissect and implement science.

Some assert that blogs and other non-traditional modes of dissemination of information are soon going to become of paramount importance in determining the smooth flow of information from the bench to the bedside and vice versa. The main reason for this is that although journals and traditional routes of publication remain the primary source of information storage and retrieval, the real conversion of this information and knowledge into applicable ideas takes place after peer-to-peer discussion. This does not usually happen on the journal forum, no matter how open and involved members are. Twitter, blogs and e-mail discussion groups are superior in this regard. Discussions on the JISC mail Evidence Based Healthcare group or the HIFA2015 e-mail discussion group clearly show the power of peer-to- peer interaction in translating the published intelligence into applicable mechanics.

The *BMJ* and several other journals in its group encourage this user interaction. Although the *BMJ* has revolutionised reader feedback on their published articles via the Rapid Response system, and by establishing the medical professional networking site Doc2Doc, people are still reluctant to comment on journal sites. Richard Smith has the following to say in this regard in one of his illuminating posts on the BMJ Blogs:[1]

> 'What is perhaps surprising in all this is that researchers are happy to blog and use Twitter but are reluctant to comment on the websites of journals. Blogs in the Guardian or on Cricket.com attract hundreds and even thousands of comments, whereas articles in journals rarely attract any. Why are scientists Tweeting and blogging but not commenting on articles in journals? I can only speculate that it's something to do with the stuffiness, formality, and pomposity of journals compared with the happy go lucky, party atmosphere of the blogosphere.'

A similar reaction:[2] '"Who in their right mind is going to log on to the PLoS One site solely to comment on a paper?' asks Jonathan Eisen, academic editor-in-chief of PLoS Biology, and a prolific blogger and tweeter. 'I guarantee that there are more comments on Twitter about a PLoS paper.'"

A second aspect of formalising academic discussion on social media, particularly on blogs and on Twitter, is using these as tools for post-publication review of papers. While post-publication peer review itself presents a paradigm shift in the form of research publication, combining it with blogs and social media seems too radical for the scientific community to handle.

However, one has to go back only a few months to the storm raised on Twitter regarding a *Science* article by Sebastiani *et al.*,[3] which created a snowball phenomenon as the snipers on 23andMe and other science blogs took aim at the methodological fallacies of the paper, which had been ratified by the *Science* peer review. Although the popular media touted the study as the key to long life, it attracted a lot of flak immediately after publication from scientists who were active online on Twitter and on blogs. While this case exhibited the obvious and well-documented, much-criticised lacunae of the traditional peer review system, it also showed the strength of using social media as a filtering system for the review of articles, the so-called post-publication peer review. The *Medical Journal of Australia* Internet peer-review study[4] concluded that while post-publication peer review is still not robust enough to replace the traditional system of pre-publication peer review, it can be a potential source of informational and critical inputs on an article. While blogs have been used as tools of education, 'peer-to-peer learning'[5] and online collaboration,[6] Twitter has accurately reflected disease activity trends during the H1N1 influenza, pandemic,[7] earthquakes and even market trends. However, we have yet to see the impact of their entry into the (arguably) '*sanctum sanctorum*' of rigorous peer-reviewed scientific communication.

The problem with using social media as a part of this system is that it tends to be unstructured and chaotic. Especially when something

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goes viral, the torrential flow of information can be too much to process and handle. And scientists are traditionally trained to abhor the absence of a systematic layering of intelligence. These 'frivolous' entities are therefore considered to be poor sources of information. We have seen that even medical news stories written by specialist health journalists are of better quality than those written by non-specialists or inexperienced writers.[8] Add to that the ephemerality of the interwebs, and there is a problem. A recent study[9] highlighted this potential threat where medical misinformation was found to spread through tweets to hundreds of 'followers'.

In an ideal world, in addition to its parent journal's impact factor a paper would also be measured in terms of metrics defined by the offline/online chatter it raised. The feedback loop generated could prompt further insights in the topic of discussion and enhance the 'knowledge impact' of the research. Some formal platforms for post-publication peer review have already been launched, like JournalWatch or Faculty of 1000, which pick out what is important and relevant, and also analyse the quality of the evidence.

Constraint through formalising and putting up communication barriers may well amount to crippling these powerful tools, or may well be seen as necessary means to keep a check on mis-communicated science, pseudoscience or plain irrelevant chatter. The ideal form is certainly not yet at hand, and the social media is still in its infancy when it comes to medical publications. However, the day is not far off when, in addition to formal outlets of publications, more informal forums and blogs will also be recognised as valid, quotable information sources.

As Richard Smith says in yet another blog:[10]

> 'Scientific blogs are becoming more important, and molecular biologists have for some time been leading the way by sharing their results immediately with each other through the internet … It's back to our roots.'

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SAMJ 100 years ago

SOUTH AFRICAN MEDICAL RECORD.

Medico-Legal.

REX *vs.* STEYN.

Illegal Practice.

In this case, Hermanus Steyn, the well-known "cancer curer," is charged with practising medicine without a licence. Two hearings in preliminary examination have been taken before the Resident Magistrate of Kimberley, and the case is still under remand.

REX *vs.* BREHAM.

Illegal Practice.

The above case was heard on the 19th of September at the Parys Circuit Court.

There were three counts, all of having treated people for eye affections. Evidence was led proving treatment, and to the effect that the medicine supplied by him was merely salt and water, and that he had charged from £3 to £4 per pair for spectacles.

Prisoner said that he had no money to fee counsel, and defended himself. In his defence he denied that he had charged for treatment, stating that he had only charged for the spectacles. He violently denounced the medical profession as a body, and raised the ingenious but somewhat fallacious contention that he was at liberty to practise as a eye specialist and optician because the Medical and Pharmacy Act had not made any provision for those classes of practitioners. Incidentally, he stated that he was introducing a novel drug which he was going to sell to the Turks for an enormous sum of money. Why to the Turks specially one does not quite know, unless as an antidote to the peculiar form of rodent ulcer which is now eating into the Tripolitan region of their political anatomy.

Mirabile dictu, the jury found the prisoner guilty after only a few minutes' consideration, and he was fined £75, with an alternative of six months' imprisonment with hard labour. The prisoner paid the fine at once.

It is worth noticing that, in this case, as in a dental one recently before the Cape Courts, it was evidently held that the fact of a charge having been made for a article prescribed by a quack is, if that charge be out of all proportion to the ordinary selling value of the article, an *ipso facto* proof of a charge for prescribing being virtually made. Another curious point is the remarkable fact of a country jury, in the Free State of all places, finding the prisoner guilty, and with such promptitude. Still another satisfactory point is the substantial amount of the fine, although this is likely to be a mere bagatelle to a gentleman who can sell spectacles at £4 a pair.

Dr. Taute, German Government Medical Officer at Lake Tanganyika, claims to have proved experimentally the transmission of sleeping sickness by the *glossina morsitans*.